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SOURCE Planovoye Khozyaystvo, No 2, 1953SOVIET STEEL AND CAST IRON PRODUCTION

[Summary: The following article, from Planovoye Khozyaystvo, stresses the increase in Soviet steel and cast iron production during the five-year plans, discusses the shift in emphasis occurring in the Fifth Five Year Plan, and outlines the objectives of the metallurgical industry for this plan.]

The Communist Party and the Soviet government have always regarded metallurgical production as a matter of continuing importance and have been unflinching in contributing to its development. Their efforts have been reciprocated. Even during the Second Five-Year Plan Soviet steel and rolled stock production was increased threefold. In 1940, the USSR produced 15 million tons of cast iron, i.e., nearly 3.6 times as much as in 1913, and 18.3 million tons of steel, i.e., nearly 4.5 times as much as in 1913.

The Fourth Five-Year Plan norms for steel and rolled stock production were also topped. The 1950 norms for rolled and raw steel were fulfilled ahead of schedule; the former in the third quarter 1949, the latter in the second quarter 1950. The 1950 production of ferrous metals surpassed prewar production by 45 percent.

The following figures indicate explicitly the dominant role of the USSR in world metallurgical production. The 1950 cast iron and steel production (in percent of 1913 production) was:

	Cast Iron	Steel
USSR	457	650
England	94	212
Belgium	148	153
US	192	276
France	149	134
World as a whole	168	247

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A comparison of the 1952 cast iron and steel production (in percent of 1913 production) of the USSR and the US also shows Soviet dominance:

	<u>Cast Iron</u>	<u>Steel</u>
USSR	595	833
US	182	270

Geografiya v Shkole of July-August 1953 notes that Soviet steel production in 1953 is running about $4\frac{1}{2}$ times as high as it was in 1940. The 1952 steel production is said to have been 35 million tons.]

The goals of the Soviet metallurgical industry, as proclaimed by Stalin in a speech on 9 February 1946 (an annual production of 50 million tons of steel and 60 million tons of cast iron), are rapidly being brought to fruition. The 1955 level of industrial production will be three times as high as the 1940 level. All in all, the Soviet iron and steel industry is developing at a rapid rate.

During the 3-year period, 1949-1951, the [annual rate of] increased by 8 million tons, steel production by 13 million tons, and rolled stock production by 10 million tons. The 1955 cast iron production will surpass 1950 production by 76 percent, steel production by 62 percent, and rolled stock production by 64 percent.

The Fifth Five-Year Plan has brought a shift of emphasis in metals manufacture. The Soviet Union is currently striving to increase its cast iron production, whereas in the Fourth Five-Year Plan the stress was on raw steel and rolled stock output. The Fifth Five-Year Plan calls for a production increase of 80 percent in steel plate and a production rise of 3.1 times in stainless sheet steel and of 2.1 times in steel wire and light sections, respectively. Steel plate production is being pushed because of the increasing demands of the power, shipbuilding, and petroleum industries. The steel wire and light section production increase is due to the increased emphasis of the socialist economy on satisfying consumer demand. Stainless sheet steel is finding increasing application in all branches of industry, particularly the machine building industry.

The Soviet metallurgical industry has been given the problem of designing better structural and machine sections, decreasing metal consumption per unit of output, and increasing the production as well as improving the properties of special steels and alloys.

Soviet mining engineers must also strive to increase the utilization of low-grade iron ore deposits. Increased ore production is necessary in order that more ore may be shipped to those European People's Democracies which lack their own mineral supply. Through improved methods (concentration in heavy suspensions, flotation, vibration processes, etc.) it is now industrially feasible to use ores with a 30-percent iron content and, in individual cases, even a 20-percent iron content. The Soviet Union has enough low-grade ores (Krivoy Rog and Kursk ores, low-grade vivianite, etc.) to last for several hundred years.

The relative size of open-hearth and blast furnaces is of major importance in the evaluation of industrial potential. Thus, at the beginning of the Fifth Five-Year Plan, blast furnaces with a capacity of 1,000 cubic meters and over, constituted 51 percent of the total blast furnaces in the Soviet Union and only 46 percent in the US; open-hearth furnaces with a capacity of 200 tons and more constituted 36 percent of the total open-hearth furnaces in the USSR and only 12 percent in the US.

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To decrease needless and expensive transportation of scrap, ore, and coke, great stress is being placed on the construction of new plants and the enlargement of existing ones. The Central and Northwestern regions are in for further development. There are many machine building plants in these regions, and under the present setup their metal has to be shipped over a distance of 1,500-2,000 kilometers.

The development of metallurgical industries in the South will also necessitate expansion of the Krivoy Rog iron ore mines. Many new iron ore deposits have also been found in the Urals in recent years. Insofar as the coke supply is concerned, there is small need for concern: the Pechora Coal Basin has recently undergone major expansion and development.

Small metallurgical plants are to be established to service local factories. These plants will have either a blast furnace and a rolling mill or just a rolling mill: they will use local scrap and fuel (if available) and imported pig iron. Although these plants will be inefficient and uneconomical in comparison with the larger metallurgical plants, they will perform a vital service and thus, indirectly, effect a great economy. This step is doubly necessary because the large metallurgical plants are unable to fill small, odd-lot orders from the minor factories.

Soviet genius has also shone in equipment exploitation. In a speech at the 19th Party Congress, Tevosyan, Minister of Metallurgy USSR, reported that the blast furnace coefficient of performance, in the Soviet Union as a whole was reduced from 1.19 in 1940 to 0.88 in 1952 (i.e., as of 30 August 1952), thus effecting a 35 percent improvement in blast furnace operation. The Magnitogorsk Plant and the Metallurgical Plant imeni Serov attained an average blast furnace coefficient of performance of 0.73. The average steel yield per square meter of blast furnace floor was increased from 4.37 tons in 1940 to 6.19 tons in 1952, i.e., a 42 percent rise.

Ninety-five percent of all the cast iron produced in the USSR is smelted in furnaces with automatic blast regulators. Pravda Ukrainy of 23 May 1953 confirms this fact and also notes that, in 1951, 87 percent of all USSR steel was smelted in open-hearth furnaces equipped with automatic temperature controls.]

Soviet output per man-hour was increased by 61 percent from 1940 to 1951.

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